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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,974	09/19/2003	Lawrence Domash	111554.128 US6	8612

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EXAMINER
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XU, LING X

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/666,974

Applicant(s)

DOMASH ET AL.

Examiner

Ling X. Xu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 48,49,51 and 60-67 is/are pending in the application.
- 4a) Of the above claim(s) 66 and 67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 48-49, 51, 60-61 and 64-65 is/are rejected.
- 7) ☒ Claim(s) 62 and 63 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/18/2005
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Newly submitted claims 66-67 directed to an invention, a method of making the filter, which is independent or distinct from the invention originally claimed for the reasons set forth in the Office action dated 9/8/2004.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 66-67 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Specification***

2. The disclosure stand objected to because of the following informalities:

On page 1 of the specification, line 2, after "filed on June 17, 2002", it should add -- now abandoned -- to indicate the status of the parent application.

Appropriate correction is required.

### ***Claim Objections***

3. Claim 49 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

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Claim 49 fails to further limit the subject matter of claim 48 because claim 48 already recites that the thin film spacer layer is made of amorphous silicon.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 48-49, 51 and 60-65 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the filter to comprise a sequence of alternating layers of amorphous silicon and silicon nitrite, does not reasonably provide enablement for a sequence of alternating layers of amorphous silicon and any dielectric material as recited in claim 48. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 48-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsai et al (US 2002/0080493).

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Tsai discloses a filter structure comprising two Fabry-Perot structures with a resonance cavity formed by stacking high refraction index film layers and low refraction index film layers with the middle layer as a spacer (page 2, embodiment [0017]). The stack of the high refraction index film layers are made of Si and low refraction index film are made of SiO<sub>2</sub>. Each of the stacks forms a reflector (a mirror) (page 2, embodiment [0018]). The reflector above the spacer is considered to be functionally equivalent to the claimed first multi-layer thin film. The reflector below the spacer is considered to be functionally equivalent to the claimed second multi-layer thin film (embodiment [0017]). The spacer comprises silicon (embodiment [0018]).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 51, 60-61 and 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al (US 2002/0080493), as applied to claim 48-49 above, and further in view of Halbout et al. (US 5,408,319).

As stated above, Tsai discloses the same multi-cavity thin-film interference filter as recited in claims 48-49.

Tsai does not disclose that the filter comprising a heater element as recited in claims 51 and 60-65.

Halbout teaches a thermally-tunable Fabry-Perot filter comprising a Fabry-Perot cavity structure, wherein the structure comprising a first mirror and a second mirror and a spacer layer separating the first and the second mirrors (col. 3, lines 25-67 and col. 5, lines 8-55).

Halbout also teaches that the Fabry-Perot filter is a thermally-tunable filter (col. 4, lines 6-40). The wavelength transmitted by the cavity is selected by thermally changing the index of refraction of the silicon in the cavity. The temperature of the cavity is adjusted by passing a current in the proximity or in the cavity to provide ohmic heating (col. 4, lines 30-67). The contacts for the current to flow in a region of silicon layer (col. 4, lines 60-67) are considered to be the heater element.

Therefore, it would have been obvious to one of ordinary skill in the art to add a heater element in the multi-cavity thin-film structure disclosed by Tsai in order to provide a thermally tunable Fabry-Perot interference filter with which the wavelength passed through the filter can be efficiently selected by adjusting the cavity temperature, as taught by Halbout.

#### ***Allowable Subject Matter***

7. Claims 62-63 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

8. Applicant's arguments filed on 5/18/2005 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling X. Xu whose telephone number is 571-272-1546. The examiner can normally be reached on 8:00 - 4:30 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah D. Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ling X. Xu  
Examiner  
Art Unit 1775

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